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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/727,069	11/30/2000	Chester A. Ruszczyk	99,225	2727

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EXAMINER
NGUYEN, ALAN V

ART UNIT	PAPER NUMBER
2662	14

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

		Application No.	Applicant(s)
Office Action Summary		09/727,069	RUSZCZYK ET AL.
		Examiner	Art Unit
		Alan Nguyen	2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.　　　2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *18 and 20* is/are allowed.

6)☒ Claim(s) *1-3,6-9 and 17* is/are rejected.

7)☒ Claim(s) *4,5,10-16,19 and 21* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date *4-7, 9, and 11-13*.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   **Claims 2, 19, and 21** are objected to because of the following informalities:

Claims 2, 19, and 21 each fails to further limit their respective parent

claim, since they do not recite additional steps that would further limit the parent

method claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1, 2, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by

Cherubini (US 6,735,221).

Regarding **claims 1, 2, and 17** Cherubini discloses a method and apparatus for

reducing interference from initializing network devices **(cable modems)** in a data over-

cable system having a plurality of upstream channels **(a cable modem, as specified**

by the MCNS specification, utilizing a plurality of upstream channels to reduce

interference of the transmission of other stations over adjacent channels; see col

1 lines 24-34; col 2 lines 10-17; and col 4 lines 1-20), the method and apparatus

comprising:

Cherubini discloses a processing system, a memory system, and program stored

in the memory system and executable by the processing system **(the embodiment is a**

communication system capable of carrying numerous processes, between a

group of cable modems and a head-end controller, that includes multiplexing,

ranging, and power adjustment. It is inherent that the system must include

processing and memory devices to execute the programs required to carry out

the functions of the systems; see col 2 lines 34-64) is;

Cherubini discloses aligning a plurality of maintenance intervals, wherein each

maintenance interval of the plurality of maintenance intervals is associated with a

corresponding upstream channel of the plurality of upstream channels **(Cherubini**

incorporates the disclosure of the MCNS specification: "Data Over Cable

Interface Specifications - Radio Frequency Specification" into the cable modem

system of the embodiment. The MCNS specification states that all initial

maintenance opportunities across all fiber branches must be aligned; see page

167 of specification); and

Cherubini discloses instructing the initializing network devices to range during the

corresponding maintenance intervals of the plurality of maintenance intervals **(The**

Initial Maintenance Element is utilized by the head-end controller [HC] to specify a

time interval during which the cable modems may send a ranging request; col 4

lines 25-30; and col 12 lines 32-37).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 3 and 6-9 rejected under 35 U.S.C. 103(a) as being unpatentable over

Cherubini in view of Hurvig et al (US 6,507,592) hereafter Hurvig.

Regarding **claim 3** Cherubini discloses the use of a plurality of usage intervals

where each interval is associated with an upstream channel **(Access to each**

upstream channel is controlled by an allocation map [MAP] message, which

describe the transmission intervals on each channel; col 4 lines 5-20):

Cherubini discloses scheduling the plurality of maintenance intervals to start at a

specific time **(Initial Maintenance Element is utilized by the head-end controller**

[HC] to specify a time interval during which the cable modems may send a

ranging request; col 12 lines 32-37);

Cherubini fails to expressly disclose where a common maintenance start time is

used for the plurality of maintenance intervals;

Hurvig discloses a system for two-way data communication for cable modems

utilizing time division multiplexing that has a common start time in the transmission of

packets **(allows the transmit start time of each terminal to be synchronized to a**

common clock source/signal. Synchronizing the start times increases the

message throughput of the data channel since the transmitted data packets do not overlap during transmission; col 2 lines 20-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Cherubini's apparatus to have the maintenance intervals to start at a common time, as taught by Hurvig. The motivation is a more efficient system that can further reduce interference by allowing the maintenance intervals in a certain range to start simultaneously. This increases the throughput of the data channel since the transmitted data packets do not overlap during transmission as explained by Hurvig on column 2 lines 25-29.

Regarding **claim 6** Cherubini discloses where the scheduling step comprises:

constructing a plurality of information elements, wherein each information element of plurality of information elements corresponds to a maintenance interval of the plurality of maintenance intervals **(an initial maintenance information element is used as a maintenance interval for the cable modems to send a ranging request; col 4 lines 25-30)**; and

Cherubini Discloses incorporating each information element of the plurality of information elements into an Upstream Bandwidth Allocation Map message **(the allocation map message [MAP] contains the initial maintenance information element; col 4 lines 11-29)**, wherein the Upstream Bandwidth Allocation Map message corresponds to a usage interval of the plurality of usage intervals, and wherein the information element contains an offset corresponding to the measure of common

maintenance start time **(the duration of the initial maintenance interval is the round-trip delay, which is the time offset; col 4 lines 29-35 and 45-58)**.

Regarding **claim 7** Cherubini discloses where the plurality of maintenance intervals is a plurality of Initial Maintenance intervals **(the initial maintenance intervals are used; col 4 lines 25-35)**.

Regarding **claim 8** Cherubini discloses scheduling upstream transmissions within each usage interval of the plurality of intervals before the measure of common maintenance start time **(when the allocation map message with an initial maintenance information element is received, the cable modem sends a ranging message; see col 12 lines 32-35)**.

Regarding **claim 9** Cherubini further fails to disclose scheduling upstream transmissions within each usage interval of the plurality of intervals after the measure of common maintenance start time.

Hurvig discloses the use of a common start time in the transmission of packets **(allows the transmit start time of each terminal to be synchronized to a common clock source/signal.; col 2 lines 20-29)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Cherubini's apparatus to schedule the upstream transmissions with the usage intervals after the measure of the common maintenance

start time, as taught by Hurvig. The motivation is a more efficient system that can further

reduce interference by allowing the maintenance intervals in a certain range to start

simultaneously. This increases the throughput of the data channel since the transmitted

data packets do not overlap during transmission as explained by Hurvig on column 2

lines 25-29.

Allowable Subject Matter

6.   **Claims 4, 5, and 10-16** are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims. Regarding claims 4 and 5 the

cited references taken individually or in combination fails to particularly disclose where

the combination of calculating the measure of common maintenance start time equal to

expression Tp + Tb - Tp mod(Tb), wherein Tb is a measure of a base insertion time for

the plurality of maintenance intervals in the data-over-cable system, and receiving a

measure of usage interval start time, Ts, for each usage interval of the plurality of usage

intervals; and deciding whether the measure of common maintenance start time, Tm,

satisfies expression Ts <= Tm < Ts + L, for each usage interval of the plurality of usage

intervals, wherein L is a measure of usage interval length for the usage interval.

     Regarding claim 10 the cited references taken individually or in combination fails

to particularly disclose where the combination of identifying a longest maintenance

interval from the plurality of maintenance intervals; calculating a number of maintenance

intervals, N, that can occur during the longest maintenance interval for each upstream channel of the plurality of upstream channels.

7.   **Claims 18-21** are allowed. Regarding claims 18 and 20 the cited references taken individually or in combination fails to particularly disclose where the combination of calculating a measure of common maintenance start time, Tm, equal to expression Tp + Tb - Tp mod(Tb), wherein Tb is a measure of a base insertion time for a plurality of maintenance intervals in the data-over-cable system.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to show the state of the art with respect to ranging in cable modems:

US Patent (6,230,326) to Unger et al

US Patent (6,742,186) to Roeck

US Patent (6,594,305) to Roeck et al

US Patent (6,526,070) to Bernath et al

US Patent (6,741,551) to Cherubini

US Patent (6,490,727) to Nazarathy et al
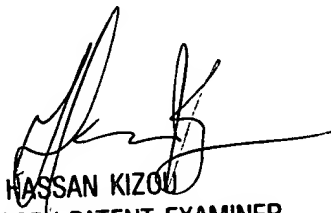
US Patent (6,650,624) to Quigley et al

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Alan Nguyen whose telephone number is 703-305-0369.

The examiner can normally be reached on 9am-6pm ET, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9314.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

AVN
June 18, 2004

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